REMARKS

Claims 10,11, 22, and 26-28 are currently pending in the subject application, and are presently under consideration. Claims 10, 11, and 22 are allowable. Claims 26-28 are rejected. Claims 26-28 have been amended. Favorable reconsideration of the application is requested in view of the comments herein.

I. Rejection of Claims 26-28 Under 35 U.S.C. §103(a)

Claims 26-28 stand rejected under 35 U.S.C. §103(a), as being unpatentable over US Patent No. 6,275,518 to Takahashi et al. ("Takahashi") in view of US Patent No. 5,689,805 to Ayerst et al. ("Ayerst"). Claims 26-28 have been amended. Representative for Applicant traverses this rejection for at least the following reasons.

Claim 26 has been amended to recite a system for generating a variable hop cycle beam laydown comprising first cells supported by a first beam hop cycle associated with a first downlink beam, second cells supported by a second beam hop cycle associated with a second downlink beam, the second downlink beam being different than the first beam hop cycle, and transition cells supported by a transition beam hop cycle. Takahashi discloses a frequency hopping communication system, such that a plurality of predetermined radio frequencies are hopped at regular time intervals, the hopping pattern defining an order of radio frequencies on a given cell (see, *e.g.*, Takahashi, col. 3, ll. 50-57). As amended, claim 26 specifically recites a variable beam hopping system, in which downlink beam energy hops from cell to cell (see, *e.g.*, Present Application, pages 1-5). Thus, Representative for Applicant respectfully submits that frequency hopping, as taught by Takahashi, is an entirely different communication concept from beam hopping, as recited in claim 26. As the principal reference, Takahashi, fails to disclose or suggest a communication system in which beam hopping is a critical feature, Representative for Applicant maintains the view that the Takashi patent is not pertinent to the present invention. Therefore, Takahashi does not teach or suggest a system for generating a variable hop cycle beam laydown comprising first cells supported by a first beam hop cycle associated with a first downlink beam, second cells supported by a second beam hop cycle associated with a second

downlink beam, the second downlink beam being different than the first beam hop cycle, and transition cells supported by a transition beam hop cycle, as recited in claim 26.

Amended claim 26 also recites that the transition beam hop cycle comprises transition downlink beam energy transmitted to a first transition cell a first percent of a time period, the transition downlink beam energy transmitted to a second transition cell a second percent of the time period and a power gated downlink beam transmitted to the first transition cell and the second transition cell for the remaining percent of the time period. The Examiner concedes that Takahashi does not teach or suggest this element of claim 26 (Office Action, page 3). The Office Action asserts that this element of claim 26 is taught by Ayerst, and further asserts that Ayerst teaches a "transition cell" of cells by stating that, in FIG. 1 of Ayerst, "cell 2A is a 'transition cell' of cells 1A and 3A, or cell 2C is a 'transition cell' of cells 1C and 3C," (Office Action, page 3; citing Ayerst, col. 2, line 45 through col. 3, line 12; col. 4, line 42 through col. 5, line 11). Representative for Applicant respectfully disagrees.

Representative for Applicant respectfully submits that Ayerst does not teach or suggest a transition cell, as it is recited in claim 26. Ayerst teaches that each of a plurality of cells has one cell transmitter (*e.g.*, base station) that defines a geographical transmission area that includes one or more receivers (see, *e.g.*, Ayerst, Abstract; col. 4, ll. 46-53). Ayerst teaches a simulcast system wherein each of a plurality of cells' base stations transmit to the respective receivers in their given cell simultaneously (see, *e.g.*, Ayerst, col. 4, line 58 through col. 5, line 11). Specifically, a communication protocol (FIG. 1, 120) includes a number of data frames, each being simultaneously transmitted to a plurality of cells (1A, 1C, etc.), with each cell having its own base station that transmits these frames in only that cell's geographically limited area (Ayerst, col. 5, ll. 11-22). Thus, the Examiner appears to equate a given cell that is receiving a transmission during a given data frame as a transition cell. Representative for Applicant respectfully disagrees. Assuming *arguendo* that the communication protocol taught by Ayerst can be considered a beam hop cycle, Ayerst teaches only one beam hop cycle, and thus does not teach or suggest a transition cell, as recited in claim 26. Specifically, Ayerst does not teach or suggest a transition cell that is supported by a transition beam hop cycle, as recited in claim 26.

As such, the reliance on Ayerst to teach a transition beam hop cycle that comprises transition downlink beam energy in a first transition cell a first percent of a time period, the transition downlink beam energy in a second transition cell a second percent of the time period, and a power gated downlink beam for the remaining percent of the time period, as recited in claim 26, is improper, as the teaching of a transition cell supported by the claimed transition beam hop cycle by Ayerst is fundamentally incorrect.

In addition, as stated above, Ayerst teaches that each of a plurality of cells has one cell base station that defines a geographical transmission area, and that each of the plurality of cells' base stations transmit to the respective receivers in their given cell simultaneously (see, *e.g.*, Ayerst, Abstract; col. 4, line 46 through col. 5, line 11). The amendment to claim 26 clarifies that the downlink beam energy of the transition beam hop cycle is the same downlink beam energy for both the first transition cell for the first percent of the time period and the second transition cell for the second percent of the time period. Specifically, claim 26 has been amended to clarify that the downlink beam energy is from a common source. As described above, the hopping scheme of Ayerst is directed to transmissions from each of a plurality of base stations occupying each of a plurality of cells. Ayerst does not teach or suggest time sharing of a given source of downlink beam energy between at least two distinctly different geographically located cells at different percentages of time. Therefore, Ayerst does not teach or suggest that the transition beam hop cycle comprises transition downlink beam energy transmitted to a first transition cell a first percent of a time period, the transition downlink beam energy transmitted to a second transition cell a second percent of the time period and a power gated downlink beam transmitted to the first transition cell and the second transition cell for the remaining percent of the time period, as recited in claim 26.

Amended claim 26 further recites that that the first downlink beam is provided to one of the first cells that is adjacent to the first transition cell during one of the second percent of the time period and the remaining percent of the time period, and such that the second downlink beam is provided to one of the second cells that is adjacent to the second transition cell during one of the first percent of the time period and the remaining percent of the time period. It is

respectfully submitted that neither Takahashi nor Ayerst, individually or in combination, teach or suggest this element of amended claim 26.

Representative for Applicant also respectfully submits that there is no motivation for one of ordinary skill in the art to combine the teachings of Takahashi with the teachings of Ayerst to achieve the combination recited in claim 26. As described above, the teachings of Takahashi are directed to a frequency hopping scheme, which is inapplicable to the variable beam hopping scheme that is recited in amended claim 26. On the other hand, Ayerst teaches a hopping scheme that is based on transmissions from base stations to respective cells that are defined by the geographical transmission area. Thus, the hopping scheme of Ayerst is likewise not applicable to satellite communications, as is taught by Takahashi. Takahashi and Ayerst thus teach communication concepts that are fundamentally unrelated. The motivation for combination provided by the Examiner is furthermore unrelated to the recitations of claim 26, as claim 26 does not recite generating, identifying and acquiring spread spectrum communication signals using layered spreading and identification code (Office Action, page 4; citing Harms, col. 1, ll. 16-19). Therefore, Representative for Applicant respectfully submits that it would not be obvious to one of ordinary skill in the art to combine the teachings of Takahashi with the teachings of Ayerst to achieve the invention of claim 26. Accordingly, neither Takahashi nor Ayerst, individually or in combination, teach or suggest claim 26. Accordingly, for all of the reasons stated above, withdrawal of the rejection of claim 26 is respectfully requested.

Claim 27 has been amended to recite a variable hop cycle beam laydown that includes a memory for storing downlink beam type definitions that direct the feed path selection input to control the switch according to a first beam hop cycle, a second beam hop cycle different than the first beam hop cycle, and a transition beam hop cycle. As such, for the reasons stated above regarding claim 26, Takahashi does not teach or suggest this element of claim 27. In addition, claim 27 has been amended to recite that the transition beam hop cycle specifies transmission of downlink beam energy of the transition downlink beam to a first transition cell a first percent of the time period, specifies the downlink beam energy of the transition downlink beam to a second transition cell a second percent of the time period, and specifies a power gated downlink

transition beam to the first transition cell and the second transition cell a remaining percent of the time period. Thus, for the reasons stated above regarding claim 26, Ayerst does not teach or suggest this element of claim 27. In addition, for reasons substantially similar to those described above regarding claim 26, Representative for Applicant maintains that there is no motivation for one of ordinary skill in the art to combine the teachings of Takahashi and Ayerst to achieve the invention of claim 27. Furthermore, claim 27 also recites a power gating circuit coupled to the waveform generator for gating power in the transition downlink beam. Representative for Applicant respectfully submits that the Office Action never addresses this element of claim 27, and further respectfully submits that neither Takahashi nor Ayerst, individually or in combination, teach or suggest this element of claim 27.

Amended claim 27 further recites that that the first downlink beam is provided to one of the first cells that is adjacent to the first transition cell during one of the second percent of the time period and the remaining percent of the time period, and such that the second downlink beam is provided to one of the second cells that is adjacent to the second transition cell during one of the first percent of the time period and the remaining percent of the time period. It is respectfully submitted that neither Takahashi nor Ayerst, individually or in combination, teach or suggest this element of amended claim 27.

Therefore, for all of the reasons described above regarding claim 27, neither Takahashi nor Ayerst, individually or in combination, teach or suggest claim 27. Withdrawal of the rejection of claim 27 is respectfully requested.

Claim 28 has been amended and recites transmitting first downlink beam energy for first cells according to a first beam hop cycle and transmitting second downlink beam energy for second cells according to a second beam hop cycle different from the first beam hop cycle. Amended claim 28 also recites transmitting transition downlink beam energy for transition cells according to a transition beam hop cycle, wherein each of the first beam hop cycle, the second beam hop cycle, and the transition beam hop cycle define how the respective downlink beam energy of a given beam is time shared between at least two cells of the respective first cells, second cells, and transition cells. Amended claim 28 also recites that the transition beam hop

cycle comprises transition downlink beam energy transmitted to a first transition cell a first percent of a time period, the transition downlink beam energy transmitted to a second transition cell a second percent of the time period, and a power gated downlink beam associated with at least one of the first transition cell and the second transition cell for a remaining percent of the time period. Amended claim 28 further recites that that the first downlink beam is provided to one of the first cells that is adjacent to the first transition cell during one of the second percent of the time period and the remaining percent of the time period, and such that the second downlink beam is provided to one of the second cells that is adjacent to the second transition cell during one of the first percent of the time period and the remaining percent of the time period. For substantially the same reasons as described above regarding claim 26, claim 28 should be allowed over the cited art. Withdrawal of the rejection of claim 28 is respectfully requested.

For the reasons described above, claims 26-28 should allowable over the teachings of Takahashi in view of the teachings of Ayerst. Accordingly, withdrawal of this rejection is respectfully requested.

CONCLUSION

In view of the foregoing remarks, Applicant respectfully submits that the present application is in condition for allowance. Applicant respectfully requests reconsideration of this application and that the application be passed to issue.

Please charge any deficiency or credit any overpayment in the fees for this amendment to our Deposit Account No. 20-0090.

Respectfully submitted,

Date 6-15-06

Christopher P. Harris
Registration No. 43,660

CUSTOMER NO.: 26,294

TAROLLI, SUNDHEIM, COVELL, & TUMMINO L.L.P.
1300 EAST NINTH STREET, SUITE 1700
CLEVELAND, OHIO 44114
Phone: (216) 621-2234
Fax: (216) 621-4072